

PATENT

Atty. Dkt. No. APPM/008260/PPC/ECP/CKIM

REMARKS

This is intended as a full and complete response to the Final Office Action dated February 17, 2006, having a shortened statutory period for response set to expire on May 17, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1, 3-5, 7-20, and 23-32 remain pending in the application and are shown above. Claims 2, 6, 21-22, and 33-43 have been cancelled by Applicants. Claims 33-43 stand withdrawn by the Examiner. Claims 1-32 are rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 1 and 16 are amended to correct errors and to include limitations from claims 6 and 22 respectively.

Claim Rejections – 35 U.S.C. § 102

Claims 1 and 13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Lindner* (U.S. Publication No. 2002/0002991, hereafter *Lindner*).

Applicants respectfully traverse this rejection.

Lindner discloses a device for treating a disc-shaped object. The device of *Lindner* has a stationary tubular body 8 and a rotatable carrier 2 having an outer ring 9 and an inner intermediate body 17. A plurality of gripping elements 19 are configured to grip a wafer and extend from the outer ring 9 (Figure 2, paragraph 34). The inner intermediate body 17 has an aperture 15. Four lines 22, 24, 26 and 20, configured to supplying a treatment liquid, a gas and a waveguide respectively, extends from the stationary tubular body 8 to the aperture 15 (Figure 2, paragraph 39).

The Examiner asserts that *Lindner* discloses a substrate treating apparatus having an inner process region in Figure 4, item 17 because a processing bowl 30 surrounds features including item 17 of Figure 4. However, the processing bowl 30 only circumference the device to catch processing liquid and leaves the top of the device open to exterior. Thus, *Lindner* does not teach a cell body defining an interior processing volume.

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Furthermore, Applicants have amended claim 1 to include limitations from claim 6. The limitations from claim 6 have been amended to correct an editorial error.

Lindner does not teach, show or suggest a substrate spin rinse dry cell comprising a cell body defining an interior processing volume, a substrate support member positioned in the processing volume, the substrate support member comprising, a rotatable flywheel having a plurality of upstanding substrate engaging members extending therefrom, and a central hub member positioned radially inward of the plurality of upstanding substrate engaging members, the central hub member having an upper surface wherein a plurality of backside fluid dispensing nozzles and at least one backside gas dispensing nozzle are positioned thereon, and at least one frontside fluid dispensing nozzle positioned to dispense a rinsing fluid onto an upper surface of a substrate supported by the substrate support members, wherein each of the plurality of upstanding substrate engaging members comprises a pivotally mounted substrate engaging finger member, and a fixedly mounted substrate support post member positioned in a channel formed into an inwardly facing surface of the substrate engaging finger member, wherein the pivotally mounted upstanding substrate engaging member is pivotally actuated via vertical movement to contact a shield member positioned in a lower portion of the spin rinse dry cell, as recited in amended claim 1, and claims dependent thereon.

Regarding claim 13, the waveguide 20 of *Lindner* senses the presence of a substrate. However, the waveguide 20 does not sense the planarity of the substrate, as claimed in the present invention.

Claims 1 and 13 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claims 16, 17, 21, 23 and 24 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Taatjes* (U.S. Patent No. 6,167,893, hereafter *Taatjes*).

Applicants respectfully traverse this rejection.

Taatjes discloses a rotatable chuck 10 having a hub 102 and beams 104. A plurality of freely pivotable clamping arms 112 are mounted on the beams 104 (Figure 1, column 2 lines 26-48). Both the hub 102 and the beams 104 are rotatable. The

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clamping arms 112 are in an open position due to gravity when the chuck 10 is stationary. When the chuck 10 rotates at a speed large enough so that the centrifugal force acting on the clamping arms 112 overcomes the gravitation force pivoting the clamping arms to a closed position (column 3 lines 10-23 and lines 31-42).

However, *Taatjes* does not teach a substrate rinsing cell having a rotatable flywheel, a central hub, or at least one backside fluid dispensing nozzle formed on an upper surface of the central hub, as claimed in the present invention.

Furthermore, Applicants have amended claim 16 to to correct errors and to include limitations from claim 22. *Taatjes* does not teach or suggest the limitations from claim 22.

Taatjes does not teach a substrate rinsing cell comprising a rotatable flywheel having a plurality of substrate engaging finger assemblies extending therefrom, each of the plurality of finger assemblies having an outer pivotally mounted substrate engaging member and an inner fixed substrate supporting member, wherein the outer pivotally mounted substrate engaging member is pivotally actuatable between a substrate loading position and a substrate processing position, and the pivotally mounted substrate engaging member is pivotally actuated via vertical movement to contact a basin shield member positioned in a lower portion of the substrate rinsing cell, a central hub positioned in the central opening of the rotatable flywheel, at least one backside fluid dispensing nozzle formed on an upper surface of the central hub and configured to dispense a rinsing fluid onto a backside of a substrate, and at least one frontside fluid nozzle configured to dispense a rinsing fluid onto a frontside of the substrate, as recited in amended claim 16, and claims dependent thereon.

Thus, claims 16, 17, 23 and 24 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 103

Claims 2, 4, 5, 7, 16, 17, 21, 23, 24 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* in view of *Taatjes*.

Applicants respectfully traverse this rejection.

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As discussed above, *Lindner* does not teach each and every element set forth in amended claim 1. *Taatjes* teaches a substrate chuck having freely pivotable clamping arms. However, *Taatjes* does not teach, show or suggest a substrate spin rinse dry cell set forth in claim 1. The combination of *Lindner* and *Taatjes* does not teach, show or suggest the substrate spin rinse dry cell as recited in claim 1, and claims dependent thereon.

As discussed above, *Taatjes* does not teach, show or suggest a substrate rinsing cell of amended claim 16. The combination of *Lindner* and *Taatjes* does not teach, show or suggest the substrate rinsing cell of claim 16, and claims dependent thereon.

Claims 2 and 21 have been cancelled. Claims 4, 5, 7, 16-17, 23-24, and 30 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner*.

As acknowledged by the Examiner, *Lindner* does not teach a shield attached to a central hub and substantially covers the flywheel. The Examiner asserts that *Lindner* teaches a shield (30, 40) substantially covers the flywheel (the rotatable carrier 2). However, items 30 and 40 are configured to catch processing liquid thrown out of a rotating wafer (paragraph 0046) and do not cover the rotatable carrier 2 as shown in Figure 4 of *Lindner*. While in the present invention, the shield extending from the central hub is configured to minimize the exposed rotating surface area of the flywheel (paragraph 0027 of the application). Therefore, a person skilled in the art would not be motivated to attach the liquid catching shield of *Lindner* to the central hub of the present invention.

Furthermore, as discussed above, *Lindner* does not teach or suggest each and every element of claim 1, on which claim 8 is dependent on.

Therefore, claim 8 is believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

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Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* and *Taatjes* as applied to claims 1 and 2 above, and further in view of *Kuroda* (U.S. Patent No. 6,811,618, hereafter *Kuroda*).

Applicants respectfully traverse this rejection.

Lindner and *Taatjes* are discussed above. *Kuroda* discloses a cleaning unit having substrate support members 64 with tapered supporting part 112 to reduce air resistance during rotation (Figure 8, column 10 lines 36-45). However, the combination of *Lindner*, *Taatjes* and *Kuroda* does not teach, show or suggest claimed subject matter for claim 1, on which claim 3 is dependent. Therefore, claim 3 is believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* and *Taatjes* as applied to claims 1 and 2 above, and further in view of *Maekawa* (U.S. Patent No. 5,775,000, hereafter *Maekawa*).

Applicants respectfully traverse this rejection.

Claim 6 has been cancelled and the limitations of claim 6 are incorporated in now amended claim 1.

Lindner and *Taatjes* are discussed above. *Maekawa* discloses a substrate gripper device having pivotable fingers actuated by a vertical movement of a cup. However, the combination of *Lindner*, *Taatjes* and *Maekawa* does not teach, show or suggest each and every limitation of claim 1. For example, the combination of *Lindner*, *Taatjes* and *Maekawa* does not teach a cell body defining an interior processing volume, and a fixed mounted substrate support post member positioned in a channel formed into an inwardly facing surface of the substrate engaging finger member. Therefore, claim 1 is in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claims 9-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* in view of *Allen* (U.S. Patent No. 4,518,678, hereafter *Allen*).

Applicants respectfully traverse this rejection.

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Lindner and *Taatjes* are discussed above. *Allen* teaches a substrate process unit having a raised baffle 35 to prevent chemical backstreaming from reaching a vacuum chuck 20 and a vacuum plate 22 (Figure 4, column 3 lines 13-16). However, the combination of *Lindner*, *Taatjes* and *Allen* does not teach, show or suggest claimed subject matter for claim 1, on which claims 9-12 are dependent. Therefore, claims 9-12 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claims 14 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* in view of *Orii* (U.S. Patent No. 6,863,741, hereafter *Orii*).

Applicants respectfully traverse this rejection.

Lindner is discussed above. *Orii* teaches a cleaning processing apparatus having an optical sensor configured to count number of wafers in the apparatus. However, the combination of *Lindner* and *Orii* does not teach, show or suggest claimed subject matter for claim 1, on which claims 14-15 are dependent. Therefore, claims 14-15 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claims 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* and *Taatjes* as applied to claim 16 and further in view of *Kuroda*.

Applicants respectfully traverse this rejection.

As discussed above, *Taatjes* does not teach, show or suggest a substrate rinsing cell of claim 16. *Kuroda* discloses a cleaning unit having substrate support members 64 with tapered supporting part 112 to reduce air resistance during rotation (Figure 8, column 10 lines 36-45). The combination of *Taatjes* and *Kuroda* does not teach, show or suggest the substrate rinsing cell of claim 16, on which claims 18-20 are dependent. Therefore, claims 18-20 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

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Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* and *Taatjes* as applied to claims 16 and 21 above and further in view of *Maekawa*.

Claim 22 has been cancelled and limitations of claim 22 are incorporated in now amended claim 16.

As discussed in claim 6, the combination of *Lindner*, *Taatjes* and *Maekawa* does not teach, show or suggest each and every limitation of claim 16.

Claims 25-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* and *Taatjes* as applied to claim 16 above, and further in view of *Allen*.

Applicants respectfully traverse this rejection.

Lindner, *Taatjes* and *Allen* are discussed above. However, the combination of *Lindner*, *Taatjes* and *Allen* does not teach, show or suggest claimed subject matter for claim 16, on which claims 25-29 are dependent. Therefore, claims 25-29 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

Claims 31-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lindner* and *Taatjes* in view of *Orij*.

Applicants respectfully traverse this rejection.

Lindner, *Taatjes* and *Orij* are discussed above. However, the combination of *Lindner*, *Taatjes* and *Orij* does not teach, show or suggest claimed subject matter for claim 16, on which claims 31-32 are dependent. Therefore, claims 31-32 are believed to be in condition for allowance. Withdrawal of this rejection is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the Final Office Action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this Final Office Action.

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Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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